AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the Application.

Claim 1 (currently amended): A photoimagable composition suitable for use as a negative photoresist comprising:

(a) about 75% to about 95% by weight of at least one epoxidized polyfunctional bisphenol A formaldehyde novolak resin;

(b) about 5% to about 25% by weight of at least one polycaprolactone polyol reactive diluent, wherein the sum of (a) and (b) equals 100%;

(c) at least one photoacid generator in an amount from about 2.5 to about 12.5 parts per hundred parts of resin and reactive diluent, which initiates polymerization upon exposure to near-ultraviolet radiation; and (d) ~~dissolved in~~ a sufficient amount of casting solvent to dissolve (a), (b) and (c).

Claim 2 (original): The composition of claim 1 wherein the at least one epoxidized polyfunctional bisphenol A formaldehyde novolak resin is one epoxy resin having an average of about eight epoxy groups and having an average molecular weight of about 1400 gram/mole and having an epoxy equivalent weight of about 215 gram/mole.

Claim 3 (original): The composition of claim 1 wherein the photoacid generator is a triaryl sulfonium hexafluoroantimonate salt.

Claim 4 (original): The composition of claim 1 wherein the at least one polyol reactive diluent is either a difunctional or trifunctional polycaprolactone polyol reactive diluent.

Claim 5 (new). The composition of claim 1 wherein the casting solvent is selected from the group consisting of gamma-butylactone, cyclopentanone, propylene glycol methyl ether acetate, cyclohexanone and methyl ethyl ketone.

Claim 6 (new). The composition of claim 1 wherein the composition additionally contains a nonionic surfactant in an amount of about 0.05 parts per hundred parts solids.

Claim 7 (new). A photoimageable composition suitable for use as a negative photoresist comprising:

(a) about 75% to about 95% by weight of an epoxy resin having an average of about eight epoxy groups and having an average molecular weight of 1400 gram/mole and having an epoxy equivalent weight of about 215 gram/mole;

(b) about 5% to about 25% by weight of a difunctional or trifunctional polycaprolactone polyol reactive diluent, wherein the sum of (a) and (b) equals 100%;

(c) a triaryl sulfonium hexafluoroantimonate salt in an amount from about 2.5 to about 12.5 parts per hundred parts of the sum of (a) and (b), which initiates polymerization upon exposure to near-ultraviolet radiation; and

(d) a sufficient amount of casting solvent to dissolve (a), (b) and (c).

Claim 8 (new). The composition of claim 7 wherein the casting solvent is selected from a group consisting of gamma-butyrolactone, cyclopentanone, propylene glycol methyl ether acetate, cyclohexanone and methyl ethyl ketone.

Claim 9 (new). The composition of claim 8 wherein the casting solvent is gamma-butyrolactone.

Claim 10 (new). The composition of claim 7 wherein the composition additionally contains a nonionic surfactant in an amount of about 0.05 parts per hundred parts solids.

Claim 11 (new). The process of photoimaging a substance comprising the steps of:

(1) preparing a photoimageable composition suitable for use as a negative photoresist comprising:

(a) about 75% to about 95% by weight of at least one epoxidized polyfunctional bisphenol A formaldehyde novalak resin;

(b) about 5% to about 25% by weight of at least one polycaprolactone polyol reactive diluent, wherein the sum of (a) and (b) equals 100%;

(c) at least one photoacid generator in the amount from about 2.5 to about 12.5 parts per hundred parts of resin and reactive diluent, which initiates polymerization upon exposure to near-ultraviolet radiation; and

(d) a sufficient amount of casting solvent to dissolve (a), (b) and (c).

(2) applying this photoimageable composition to a substance in a thickness from about 1 micron to about 100 microns;

(3) exposing the coated substrate to patterned near-ultraviolet radiation to photo image the photoresist coating;

(4) conducting a post-exposure bake on the photoimaged, coated substrate; and

(5) developing the photo imaged photoresist coating with an organic solvent developer to dissolve away the unpolymerized regions and leave negative photoresist image on the substrate.

Claim 12 (new). The process of claim 11 wherein the casting solvent is selected from the group consisting of gamma-butyrolactone, cyclopentanone, propylene glycol methyl either acetate, cyclohexanone and methyl ethyl ketone.

Claim 13 (new). The process of claim 11 wherein the substrate is selected from the group consisting of silicon, silicon dioxide, alumina, gallium arsenide, metal, and deposited metal on silicon.

Claim 14 (new). The process of claim 11 wherein applying step (b) is carried out by spin-coating the photoimaging composition onto the substrate.

Claim 15 (new). The process of claim 11 wherein exposing step (c) is carried out by using an exposure tool with near-ultraviolet radiation from a medium or high-pressure mercury lamp through a photomask containing a pattern of opaque and transparent regions.

Claim 16 (new). The process of claim 11 wherein after applying step (b) and prior to exposing step (c) the coated substrate is baked to evaporate the casting solvent.

Claim 17 (new). The process of photoimaging a substrate composing the steps of:
(1) preparing a photoimageable composition suitable for use as a negative photoresist comprising:

(a) about 75% to about 95% by weight of an epoxy resin having an average of about eight epoxy groups and having an average molecular weight of 1400 gram/mole and having an epoxy equivalent weight of about 215 gram/mole;

(b) about 5% to about 25 % by weight of a difunctional or trifunctional polycaprolactone polyol reactive diluent, wherein the sum of (a) and (b) equals 100%;

(c) a triaryl sulfonium hexafluoroantimonate salt in an amount from about 2.5 to about 12.5 parts per hundred parts of the sum of (a) and (b); and

(d) a sufficient amount of casting solvent to dissolve (a), (b) and (c);

(2) applying this photo imagable composition to a substrate in a thickness from about 1 micron to about 100 microns;
(3) exposing the coated substrate to patterned near-ultraviolet radiation to photoimage the photoresist coating;
(4) conducting a post-exposure bake on the photoimaged, coated substrate; and
(5) developing the photoimaged photoresist coating with an organic solvent developer to dissolve away the unpolymerized regions and leave a negative photoresist image on the substrate.

Claim 18 (new). The process of claim 17 wherein the substrate is selected from the group consisting of silicon, silicon dioxide, alumina, gallium arsenide, metal and deposited metal on silicon.

Claim 19 (new). The process of claim 17 wherein applying step (b) is carried out by spin-coating the photoimaging composition onto the substrate.

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Claim 20 (new). The process of claim 17 wherein after applying step (b) and prior to exposing step (c) the coated substrate is baked to evaporate the casting solvent.